

WHAT IS CLAIMED IS:

- 1                   1.     A method of queuing calls to a subscriber of queuing services  
2     accessed through a subscriber line, the method comprising:  
3                   detecting a call to the subscriber line at a local switch connected to  
4     the subscriber line;  
5                   if the subscriber line is busy, queuing the call to the subscriber in a  
6     intelligent peripheral, the intelligent peripheral within an Advanced Intelligent  
7     Network (AIN) telecommunications system;  
8                   determining that the subscriber line is not busy; and  
9                   if a call is queued in the intelligent peripheral and the subscriber line  
10    is determined to be not busy, connecting the call to the subscriber with the  
11    subscriber line.
- 1                   2.     A method of queuing calls as in claim 1 wherein detecting the  
2     call to the subscriber comprises setting a Termination Attempt Trigger against the  
3     subscriber line.
- 1                   3.     A method of queuing calls as in claim 1 wherein detecting the  
2     call to the subscriber comprises provisioning Call Forward on Busy Line on the  
3     subscriber line.
- 1                   4.     A method of queuing calls as in claim 1 wherein queuing the  
2     call to the subscriber comprises forwarding the subscriber line call to a Direct  
3     Inward Dial telephone number on the intelligent peripheral.
- 1                   5.     A method of queuing calls as in claim 1 wherein determining  
2     that the subscriber line is not busy comprises setting a Next Event List at the  
3     subscriber local switch.
- 1                   6.     A method of queuing calls as in claim 1 wherein determining  
2     that the subscriber line is not busy comprises:

3 provisioning Call Forward on Busy Line on the subscriber line  
4 causing the local switch to call the intelligent peripheral when the subscriber line is  
5 found to be busy in response to a call to the subscriber line;  
6 dialing the subscriber line from the intelligent peripheral; and  
7 determining that the subscriber line is busy if the local switch calls  
8 the intelligent peripheral in response to the call to the subscriber line from the  
9 intelligent peripheral.

1 7. A method of queuing calls as in claim 1 further comprising  
2 determining that the call to the subscriber has been queued for a  
3 determined amount of time;  
4 requesting that a caller placing the call to the subscriber perform an  
5 action to remain in queue; and  
6 if the caller does not perform the requested action, dequeuing the call.

1 8. A method of queuing calls as in claim 1 further comprising:  
2 receiving a plurality of calls to access the subscriber line;  
3 placing each received call in the queue associated with the subscriber  
4 line if the subscriber line is busy;  
5 collecting queue utilization information about each queued call; and  
6 generating queue utilization statistics based on the collected queue  
7 utilization information.

1 9. A method of queuing calls as in claim 1 further comprising  
2 placing a call from the intelligent peripheral indicating status of the queued  
3 subscriber line call to the subscriber.

1 10. A method of queuing calls as in claim 1 wherein the intelligent  
2 peripheral is a switchless intelligent peripheral.

1 11. A system for queuing subscriber calls within an Advanced  
2 Intelligent Network (AIN) telecommunications system, each subscriber call placed  
3 by a caller to a subscriber line, the system comprising:

4 a local switch servicing the subscriber line, the local switch including  
5 Call Forward on Busy Line functionality provisioned on the subscriber line, the Call  
6 Forward on Busy Line functionality forwarding any subscriber call received for the  
7 subscriber line when the subscriber line is busy; and

8 an intelligent peripheral within the AIN system operative to:

- 9 (a) receive any forwarded subscriber call from the local switch;  
10 (b) if queue slots are available in the intelligent peripheral, queue  
11 the received subscriber call;  
12 (c) place a busy check call to the subscriber line;  
13 (d) drop the busy check call if the busy check call is forwarded  
14 back to the intelligent peripheral from the local switch; and  
15 (e) connect a queued subscriber call to the busy check call if the  
16 subscriber line is not busy.

1 12. A system for queuing subscriber calls as in claim 11 further  
2 comprising a service control point in communication with the intelligent peripheral,  
3 the service control point determining if queue slots are available in the intelligent  
4 peripheral.

1 13. A system for queuing subscriber calls as in claim 12 further  
2 comprising a messaging system, the service control point instructing the intelligent  
3 peripheral to dial the number of the messaging system and to bridge the received  
4 subscriber call to the messaging system call if the service control point determines  
5 no queue slots are available.

1 14. A system for queuing subscriber calls as in claim 12 wherein  
2 the service control point instructs the intelligent peripheral to play a message to the  
3 received subscriber call if the service control point determines no queue slots are  
4 available.

1                   15. A system for queuing subscriber calls as in claim 11 wherein  
2 the intelligent peripheral is further operative to request that the caller perform an  
3 action to remain in queue after determining that the subscriber call has been queued  
4 for a determined amount of time and, if the caller does not perform the requested  
5 action, to dequeue the call.

1                   16. A system for queuing subscriber calls as in claim 11 further  
2 comprising:

3                   a plurality of intelligent peripherals, each intelligent peripheral  
4 implementing at least one call queue, each call queue associated with one of a  
5 plurality of subscribers;

6                   at least one service control point, each intelligent peripheral in  
7 communication with one service control point collecting information about each  
8 queued call; and

9                   a data server in communication with the at least one service control  
10 point, the data server aggregating queue utilization data for each subscriber.

1                   17. A system for queuing subscriber calls as in claim 16 further  
2 comprising at least one data distributor, each data distributor in communication with  
3 a service control point and the data server, each data distributor receiving  
4 information about each queued call from the service control point and periodically  
5 forwarding the information to the data server.

1                   18. A system for queuing subscriber calls as in claim 16 further  
2 comprising a data publishing platform in communication with the data server, the  
3 data publishing platform aggregating subscriber queue utilization data across a  
4 plurality of report periods.

1                   19. A system for queuing subscriber calls as in claim 11 wherein  
2 the intelligent peripheral is further operative to place a status call providing status  
3 information to the subscriber about at least one queued call.

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1                   20.    A system for queuing subscriber calls as in claim 11 wherein  
2   the intelligent peripheral is a switchless intelligent peripheral.

1                   21.    A method for queuing subscriber calls comprising:  
2                   provisioning a subscriber line with Call Forward on Busy Line  
3   functionality at a local switch servicing the subscriber line;  
4                   receiving a subscriber call destined for the subscriber line at the local  
5   switch;  
6                   if the subscriber line is busy, forwarding the received call to a Direct  
7   Inward Dial telephone number on an intelligent peripheral via the Call Forward on  
8   Busy Line functionality;  
9                   receiving the forwarded call at the intelligent peripheral; and  
10                  queuing the forwarded call at the intelligent peripheral if the  
11   intelligent peripheral has at lease one available queue slot.

1                   22.    A method for queuing subscriber calls as in claim 21 further  
2   comprising calling a messaging service from the intelligent peripheral if the  
3   intelligent peripheral has no available queue slots and bridging the forwarded call  
4   with the messaging service call.

1                   23.    A method for queuing subscriber calls as in claim 21 further  
2   comprising playing a message from the intelligent peripheral if the intelligent  
3   peripheral has no available queue slots.

1                   24.    A method for queuing subscriber calls as in claim 21 further  
2   comprising playing a message from the intelligent peripheral to the forwarded call  
3   when queuing the forwarded call.

1                   25.    A method for queuing subscriber calls as in claim 21 further  
2   comprising:  
3                   determining that the subscriber call has been queued for a determined  
4   amount of time;

5                    requesting that a caller placing the subscriber call perform an action  
6                    to remain in queue; and  
7                    if the caller does not perform the requested action, dequeuing the call.

1                    26.     A method for queuing subscriber calls as in claim 21 further  
2                    comprising:  
3                    receiving a plurality of subscriber calls to access the subscriber line;  
4                    placing each received call in the queue associated with the subscriber  
5                    line if the subscriber line is busy;  
6                    collecting queue utilization information about each queued call; and  
7                    generating queue utilization statistics based on the collected queue  
8                    utilization information.

1                    27.     A method for queuing subscriber calls as in claim 21 further  
2                    comprising placing a call from the intelligent peripheral indicating status of the  
3                    queued subscriber call.

1                    28.     A method for queuing subscriber calls comprising:  
2                    queuing at least one subscriber call in an intelligent peripheral;  
3                    placing a busy check call from the intelligent peripheral to a  
4                    subscriber line;  
5                    receiving the busy check call in a local switch servicing the subscriber  
6                    line;  
7                    if the subscriber line is busy, forwarding the busy check call back to  
8                    the intelligent peripheral through Call Forward on Busy Line functionality  
9                    implemented in the local switch;  
10                    disconnecting the busy check call if the intelligent peripheral receives  
11                    back the forwarded busy check call; and  
12                    connecting a queued subscriber call with the busy check call if the  
13                    subscriber line is not busy.